AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) ~~Active~~ An active chamber engine, comprising:

at least one piston (1) sliding in a cylinder (2) controlled by a device for stopping the piston at top dead centre and supplied with compressed air or any other gas at high pressure contained in a storage reservoir (22) which is reduced to an average pressure called [[the]] a working pressure in a work capacity (19), wherein: ~~preferably through a dynamic pressure reducing valve characterized:~~

~~In that the~~ an expansion chamber ~~consists of~~ has a variable volume fitted with [[the]] means to produce work and [[that]] is joined to and in contact with [[the]] a space contained above [[the]] a main engine piston by means of a permanent passage(12),

~~In that~~ when the piston is stopped at top dead centre, the air or gas under pressure is admitted into the expansion chamber when [[this]] the expansion chamber is at its smallest volume and, under the thrust of this air under pressure, the expansion chamber increases its volume by producing work,

~~- In that~~ when the expansion chamber being maintained at very nearly its maximum volume, the compressed air contained within the expansion chamber then expands into the engine cylinder thus pushing the engine piston downwards along its travel by in turn supplying work,

~~- In that during the~~ during an upwards travel of the engine piston during [[the]] an exhaust stroke, the variable volume in the expansion chamber is returned to its smallest volume to restart [[the]] a complete work cycle.

2. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized in that~~ 1, wherein the work cycle of the active chamber with regard to [[the]] a cycle of the engine piston comprises three phases such that:

~~- When~~ when the engine piston is stopped at top dead centre: admission of a charge into the active chamber producing work by increasing its volume,

~~- During the~~ during expansion travel of the engine piston: maintenance at a predetermined volume which is the actual volume of the expansion chamber,

~~During~~ during the exhaust stroke of the engine piston: repositioning of the active chamber to its minimum volume to enable the cycle to be renewed.

3. (currently amended) ~~Active~~ The active chamber engine according to claim ~~2 for which the~~ 2, wherein an operating thermodynamic cycle in compressed air mono-energy mode ~~is characterized by~~ has an isothermal expansion without work with conservation of energy, carried out between the high pressure compressed air storage reservoir and the work capacity, followed by a transfer accompanied by a very slight expansion in the pressure cylinder known as quasi-isothermal with work, then a polytropic expansion with work in the engine cylinder and lastly an exhaust at atmospheric pressure ~~i.e.~~ has four phases as follows:

~~—An~~ an isothermal expansion without work,

~~—A~~ a transfer - slight expansion with work known as quasi-isothermal,

~~—A~~ a polytropic expansion with work,

[[An]] an exhaust at ambient pressure.

4. (currently amended) ~~Active~~ The active e chamber engine according to claim ~~1 characterized in that~~ 1, wherein the work capacity (19) comprises a device (25,26) for heating the compressed air with a supplementary energy provided by fossil or other fuel, [[the]] said device (25,26) increasing the temperature and/or pressure of the air passing through [[it]] said device (25,26).

5. (currently amended) ~~Active~~ The active chamber engine according to claim ~~4 characterized in that~~ 4, wherein the compressed air is heated by the combustion of fossil or biological fuel directly in the compressed air, the engine then being ~~said to be of the~~ an external internal combustion ~~type~~ engine.

6. (currently amended) ~~Active~~ The active chamber engine according to claim ~~4 characterized in that~~ 4, wherein the compressed air contained in the work capacity is heated by the combustion of fossil or biological fuel in a heat exchanger, the flame not coming into direct contact with the compressed air, the engine then being ~~said to be of the~~ an external-external combustion ~~type~~ engine.

7. (currently amended) ~~Active~~ The active chamber engine according to claim ~~4 characterized in that~~ 4, wherein the thermal heater uses a thermochemical gas solid reaction process based on [[the]] transformation by evaporation of a reagent fluid contained in an evaporator, ~~for example~~ or transformation with liquid ~~ammonium~~ ammonia or a gas which reacts with a solid reagent contained in a reactor, ~~for example~~ or transformation of liquid ammonia with salts ~~such as~~ of calcium, magnesium or barium chlorides or ~~others~~ with salts whose chemical reaction produces

heat and which, when the reaction has finished can be regenerated by heating the reactor which ~~cases the~~ causes desorption of the gaseous ~~ammonium~~ ammonia which ~~recompenses~~ recondenses in the evaporator.

8. (currently amended) ~~Active~~ The active chamber engine according to claim 4, wherein the chamber's ~~whose~~ thermodynamic cycle when working in bi-energy mode with supplementary energy ~~is characterized by~~ has an isothermal expansion without work with conservation of energy carried out in the work capacity by an increase in temperature by the heating of the air by [[a]] fossil energy followed by a very slight expansion known as quasi-isothermal with work, a polytropic expansion with work in the engine cylinder and lastly an exhaust at atmospheric pressure representing 5 successive phases as follows:

~~An~~ an isothermal expansion,

~~An~~ an increase in temperature,

~~A~~ a transfer - slight expansion with work known as quasi-isothermal,

~~A~~ a polytropic expansion with work,

[[An]] an exhaust at ambient pressure.

9. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized in that the~~ 1, wherein a

torque and [[the]] a speed of the engine are controlled by controlling the pressure in the work capacity (19).

10. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized in that the~~ 1, wherein during operation in bi-energy mode with supplementary energy, an electronic computer controls [[the]] a quantity of energy used according to the pressure of the compressed air therefore [[the]] a mass of the air introduced into the said work capacity.

11. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized in that the~~ 1, wherein a volume of the active chamber is made up of a piston (14) called the pressure piston sliding in a cylinder (13) and connected by a connecting rod (15) to [[the]] a crank of the engine (9) according to a classic drive sequence.

12. (currently amended) ~~Active~~ The active chamber engine according to claim ~~11 characterized in that the~~ 11, wherein a travel of the pressure piston (14) is determined such that when the volume chosen as volume of the chamber has been reached and during the downward travel of the engine piston (1), the pressure piston (14) finishes its downward travel and starts its upward travel so as to reach its top dead centre approximately at

[[the]] a same time as the engine piston reaches its top dead centre.

13. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized in that~~ 1, wherein to enable autonomous operation of the engine during its [[use]] utilization with supplementary energy and/or when the compressed air storage reservoir (22) is empty, the active chamber engine ~~according to the invention~~ is connected to an air compressor (27) to supply compressed air to the high pressure compressed air storage reservoir (22).

14. (currently amended) ~~Active~~ The active chamber engine according to claim 13, ~~characterized in that~~ wherein the air compressor (27) directly supplies the work capacity ~~(19). In this case,~~ (19), and the engine is controlled by controlling the pressure of the compressor (27) and [[the]] a dynamic pressure reducing valve (21) between the high pressure storage reservoir and the work capacity remains blocked off.

15. (currently amended) ~~Active~~ The active chamber engine according to claim 14, ~~characterized in that~~ wherein the coupled air compressor (27) supplies compressed air simultaneously or successively in combination the storage reservoir (22) and the work capacity (19).

16. (currently amended) ~~Active~~ The active chamber engine according to claim ~~1 characterized by~~ 1, wherein a mono-energy operation with a fossil or other fuel ~~(or other)~~, the work capacity (19) being supplied only by [[the]] a coupled air compressor (27), the high pressure compressed air storage reservoir ~~being purely and simply~~ is omitted.

17. (currently amended) ~~Active~~ The active chamber engine according to claim ~~6 characterized in that the~~ 6, wherein an exhaust after expansion is recalculated to [[the]] an inlet of [[the]] a coupled air compressor (27).

18. (currently amended) ~~Active~~ The active chamber engine according to claim 1 working in compressed air mono-energy ~~mode characterized in that~~ mode, wherein the engine is comprised of multiple expansion stages of increasing cylinder sizes each stage comprising an active chamber ~~according to the invention~~ and in that, between each stage a heat exchanger (29) is positioned to heat [[the]] exhaust air from the previous stage.

19. (currently amended) ~~Active~~ The active chamber engine according to claim 18 operating in bi-energy ~~mode characterized in that~~ mode, wherein the heat exchanger positioned between each

stage is fitted with a heating device running on supplementary energy.

20. (currently amended) ~~Active~~ The active chamber engine according to claim ~~19 characterized in that~~ 19, wherein the heat exchangers and the heating device are combined together or separately in a multiple stage device using the same energy source.

21. (new) The active chamber engine according to claim 1, wherein the air or any other gas at high pressure contained in the storage reservoir (22) is reduced to the average pressure through a dynamic pressure reducing valve (21).